What is claimed is:

1. A vibration-isolation system for assembly of a motorcycle frame with an engine/transmission unit, comprising:

a first pivotal mount at a rear portion of the frame and engine/transmission unit, the first mount comprising all rigid bearing components mounted to solid elements of both the frame and the engine/transmission unit, the first mount thereby allowing the engine/transmission unit to rotate around the first mount in substantially a vertical plane of the frame, but allowing no pivotal movement in any other plane or any translation movement in any direction relative to the frame; and

a second mount at a front portion of the frame and engine/transmission unit, the second mount incorporating one or more elastomeric elements between a solid interface to the frame and a solid interface to the engine/transmission unit, thereby allowing substantially vertical translation of the engine transmission unit relative to the frame at the second mount, the translation of an amplitude limited by the elastomeric elements, and thereby limiting the rotation of the engine/transmission unit around the first pivotal mount.

2. The system of claim 1 wherein the bearing components of the first mount comprise one or more journal bearings.

3. The system of claim 1 wherein the bearing components of the first mount comprise one or more ball bearings.

4. The system of claim 1 wherein the elastomeric elements of the second mount comprise one or more cylinders of rubber-like material.

5. The system of claim 1 further comprising adjustment apparatus associated with the second mount, enabling a user to adjust the elasticity of the second mount to tune vibration effects of the system.

6. The system of claim 4 wherein the cylinders of rubber-like material are mounted on a shaft having an axis, and the second mount includes a compression apparatus allowing compression of the elastomeric elements in the direction of the axis, thereby adjusting the elasticity of the second mount to tune vibration effects of the system.

7. The system of claim 1 wherein the assembly includes a swing arm for mounting a rear wheel for a motorcycle using the frame and engine/transmission unit, wherein the swing arm mounts pivotally to the second mount integrally with the engine/transmission unit, thereby allowing the swing arm unit to rotate around the first mount in substantially a vertical plane of the frame, but allowing no pivotal movement in any other plane or any translation movement in any direction relative to the frame.

8. A method for mounting an engine/transmission unit to a frame for a motorcycle to isolate vibration, comprising steps of:

(a) mounting the engine/transmission unit to a first pivotal mount at a rear portion of the frame, the first mount comprising all rigid bearing components mounted to solid elements of both the frame and the engine/transmission unit, the first mount thereby allowing the engine/transmission unit to rotate around the first mount in substantially a vertical plane of the frame, but allowing no pivotal movement in any other plane or any translation movement in any direction relative to the frame; and

(b) mounting the engine/transmission unit to a second mount at a front portion of the frame and engine/transmission unit, the second mount incorporating

one or more elastomeric elements between a solid interface to the frame and a solid interface to the engine/transmission unit, thereby allowing substantially vertical translation of the engine transmission unit relative to the frame at the second mount, the translation of an amplitude limited by the elastomeric elements, and thereby limiting the rotation of the engine/transmission unit around the first pivotal mount.

9. The method of claim 8 wherein the bearing components of the first mount comprise one or more journal bearings.

10. The method of claim 8 wherein the bearing components of the first mount comprise one or more ball bearings.

11. The method of claim 8 wherein the elastomeric elements of the second mount comprise one or more cylinders of rubber-like material.

12. The method of claim 8 further comprising adjustment apparatus associated with the second mount, enabling a user to adjust the elasticity of the second mount to tune vibration effects of the system.

13. The method of claim 11 wherein the cylinders of rubber-like material are mounted on a shaft having an axis, and the second mount includes a compression apparatus allowing compression of the elastomeric elements in the direction of the axis, thereby adjusting the elasticity of the second mount to tune vibration effects of the system.

14. The method of claim 8 wherein the assembly includes a swing arm for mounting a rear wheel for a motorcycle using the frame and engine/transmission unit, wherein the swing arm mounts pivotally to the second mount integrally with

the engine/transmission unit, thereby allowing the swing arm unit to rotate around the first mount in substantially a vertical plane of the frame, but allowing no pivotal movement in any other plane or any translation movement in any direction relative to the frame.

15. A frame and engine assembly for motorcycle, comprising:

a frame having a first frame interface for a first mount positioned at the rear and a second frame interface for a second mount positioned at the front;

an engine/transmission unit having a first engine/transmission unit interface for the first mount and a second engine/transmission unit for the second mount; and

a first mount and a second mount between the frame and the engine/transmission interface;

characterized in that the first mount comprises all rigid bearing components mounted to solid elements interfacing to both the frame and the engine/transmission unit, the first mount thereby allowing the engine/transmission unit to rotate around the first mount in substantially a vertical plane of the frame, but allowing no pivotal movement in any other plane or any translation movement in any direction relative to the frame, and in that the second mount incorporates one or more elastomeric elements between solid elements interfacing to the frame and to the engine/transmission unit, thereby allowing substantially vertical translation of the engine transmission unit relative to the frame at the second mount, the translation of an amplitude limited by the elastomeric elements, and thereby limiting the rotation of the engine/transmission unit around the first pivotal mount.

16. The frame and engine assembly of claim 15 wherein the bearing components of the first mount comprise one or more journal bearings.

17. The frame and engine assembly of claim 15 wherein the bearing components of the first mount comprise one or more ball bearings.

18. The frame and engine assembly of claim 15 wherein the elastomeric elements of the second mount comprise one or more cylinders of rubber-like material.

19. The frame and engine assembly of claim 15 further comprising adjustment apparatus associated with the second mount, enabling a user to adjust the elasticity of the second mount to tune vibration effects of the system.

20. The frame and engine assembly of claim 18 wherein the cylinders of rubber-like material are mounted on a shaft having an axis, and the second mount includes a compression apparatus allowing compression of the elastomeric elements in the direction of the axis, thereby adjusting the elasticity of the second mount to tune vibration effects of the system.

21. The frame and engine assembly of claim 15 wherein the assembly includes a swing arm for mounting a rear wheel for a motorcycle using the frame and engine/transmission assembly, wherein the swing arm mounts pivotally to the second mount integrally with the engine/transmission unit, thereby allowing the swing arm unit to rotate around the first mount in substantially a vertical plane of the frame, but allowing no pivotal movement in any other plane or any translation movement in any direction relative to the frame.

22. A motorcycle comprising:

a frame having a first frame interface for a first mount positioned at the rear and a second frame interface for a second mount positioned at the front;

an engine/transmission unit having a first engine/transmission unit interface for the first mount and a second engine/transmission unit for the second mount; and

a first mount and a second mount between the frame and the engine/transmission interface;

characterized in that the first mount comprises all rigid bearing components mounted to solid elements interfacing to both the frame and the engine/transmission unit, the first mount thereby allowing the engine/transmission unit to rotate around the first mount in substantially a vertical plane of the frame, but allowing no pivotal movement in any other plane or any translation movement in any direction relative to the frame, and in that the second mount incorporates one or more elastomeric elements between solid elements interfacing to the frame and to the engine/transmission unit, thereby allowing substantially vertical translation of the engine transmission unit relative to the frame at the second mount, the translation of an amplitude limited by the elastomeric elements, and thereby limiting the rotation of the engine/transmission unit around the first pivotal mount.

23. The motorcycle of claim 22 wherein the bearing components of the first mount comprise one or more journal bearings.

24. The motorcycle of claim 22 wherein the bearing components of the first mount comprise one or more ball bearings.

25. The motorcycle of claim 22 wherein the elastomeric elements of the second mount comprise one or more cylinders of rubber-like material.

26. The motorcycle of claim 22 further comprising adjustment apparatus associated with the second mount, enabling a user to adjust the elasticity of the second mount to tune vibration effects of the system.

27. The motorcycle of claim 25 wherein the cylinders of rubber-like material are mounted on a shaft having an axis, and the second mount includes a compression apparatus allowing compression of the elastomeric elements in the direction of the axis, thereby adjusting the elasticity of the second mount to tune vibration effects of the system.

28. The motorcycle of claim 22 wherein the assembly includes a swing arm for mounting a rear wheel for a motorcycle using the frame and engine/transmission assembly, wherein the swing arm mounts pivotally to the second mount integrally with the engine/transmission unit, thereby allowing the swing arm unit to rotate around the first mount in substantially a vertical plane of the frame, but allowing no pivotal movement in any other plane or any translation movement in any direction relative to the frame.